Subject: ETS MPS/PM-1 (Aqua) Engineering Release 6.6 Delivery
Date: Fri, 22 Feb 2002 17:12:38 -0500
From: equintin@csc.com
To: wfuller@pop500.gsfc.nasa.gov

Willie,

We are pleased to deliver Release 6.6 of the ETS Multimode Portable Simulator for PM-1 (MPS/Aqua). This engineering release delivery contains code enhancements for Change Request ETS0449, enabling MPS to act as a Front End to the ETSF. Code to answer Discrepancy Request ETS0450 is also included. Complete descriptions of the changes and enhancements are contained in the attachments.

There are seven attachments to this letter.

Attachment A describes the capabilities included in this release.
Attachment B describes installation instructions for this release.
Attachment C describes special operating instructions for this release.
Attachment D contains the resolved DR descriptions
Attachment E contains the system limitations.
Attachment F contains an updated release history summary matrix.
Attachment G contains an updated Mission Systems Configuration Management (MSCM) form.

Attachment C is being delivered as a zip file because its size might overwhelm some mail systems. The updated software executable modules are being delivered on CD-ROM. Two copies of the CD are being given to Guy Cordier, who will forward one copy to Raytheon at Denver and will use the other for installation on the MPS/Aqua simulator PCs in the Bldg 32 EOS ISR and LSR at GSFC. A PC is being readied for shipment to John Guida for installation at the ETSF in the MAR.

The updated software is also being installed on the serial card-equipped PCs in the Bldg 25 Simulations Operations Center and on the portable PCs, in the event that any of those units are needed to support upcoming Aqua data flows.

If you have any questions about this delivery, please do not hesitate to contact me or Estelle Noone.

Ernest Quintin
301-805-3649

CC: alan.johns@gsfc.nasa.gov, Alexander.Krimchansky.1@gsfc.nasa.gov,
gcordier@rattler-e.gsfc.nasa.gov, kcklem@west.raytheon.com,

arhabeger@west.raytheon.com, rmesserly@mail.gblt.averstar.com,
vhruland@west.raytheon.com, pburrows@csc.com, jcarlson@csc.com,
klavery@pop500.gsfc.nasa.gov, Van.Grant@honeywell-tsi.com,
eshurie@pop400.gsfc.nasa.gov, enoone@csc.com,
rwinters@mail.gblt.averstar.com, diana.sexton@averstar.com,
jguida@pop500.gsfc.nasa.gov, jtouchst@eoc.ecs.nasa.gov,
ggarner@rattler-e.gsfc.nasa.gov, tpha@raytheon.com,
Jim King <jking@toronto.eoc.ecs.nasa.gov>, jpawlosk@eoc.ecs.nasa.gov

Attachment A – Summary of Operational Changes

Operational Capabilities of MPS/Aqua Release 6.6

New or modified capabilities with this release are noted in **Bold**.

Telemetry:

- Transmit telemetry in IP or Serial (clock/data) mode
- Pack telemetry packets and CLCWs into CADUs when in Serial mode
- Generate one stream of CADUs when in Serial mode
- Generate one stream of telemetry formatted as EDUs when in IP mode
- Start or stop one telemetry stream
- Ingest the PDB files
- Generate telemetry packets from information contained in the PDB
- Maintain telemetry nodes from information contained in the PDB
- Populate telemetry packets with data values from information contained in the PDB
- Generate correct secondary headers for SC, GIRD, and SUROM-TIE (no secondary header) telemetry packets using information from the PDB
- Generate instrument telemetry packets using secondary key information from the PDB
- Display EDU data when in IP mode
- Display CADU data when in Serial mode
- Set values into telemetry points by mnemonic
- Display telemetry node values by mnemonic
- Convert telemetry values to Engineering Units (EU) for display using information from the PDB
- Accept operator-entered telemetry values in EU and convert to Raw Counts for inclusion in telemetry packets
- Reset packet count for the telemetry stream
- Static packet data can be overwritten (by byte location) and by modification of telemetry mnemonic
- Incrementing packet sequence counters per APID
- Generation of individual APIDs can be inhibited
- Telemetry logs will be created (viewable by offline utility)
- Packet Headers and Packet Data are updated
- Packet data can be shown in hexadecimal or octal format and addressed in hexadecimal or decimal form
- Packet Sequence Counters can be reset
- Packet Sequence Counters can be modified
- Packet Version field can be modified
- Packet APID field can be modified
- Packet Type field can be modified
- Packet Secondary Header Flag field can be modified
- Packet Length field can be modified

- CCSDS Unsegmented TimeCode (CUC) can be modified
- Packet rate may be controlled
- CLCW transmitted via EDUs when in IP mode
- IP packets are transmitted with variable lengths
- CLCW can be overridden by the operator
- Transmission of CLCW can be inhibited when in IP mode
- Scenario file (script) capability to set telemetry nodes and buffers
- Set telemetry data values in response to spacecraft commands received (end-item verification)
- Set initial telemetry data values at initialization
- Allow simultaneous display and set of multiple telemetry container items via GUI screens
- Simulate spacecraft memory dumps
- Use the PDB telemetry state text file to locate end-item verifier values
- Maintain and update telemetry data values in APID 1000
- Telemetry parameters may be set and viewed by Parameter ID
- CLCW Transmit Start and Stop is coupled to H/K Telemetry Start and Stop
- Telemetry values may be set using simple expressions
- Telemetry values may be set using trigonometric expressions
- Telemetry values may be set using Boolean expressions
- Telemetry values may be set to other telemetry mnemonic values
- Telemetry values may be saved in intermediate variables for later use
- TES Segmented Packets are emulated
- CLCW Transmit rate may be set by the operator
- Telemetry data values are validated for fit into packet space
- Current enable status and transmit rate for all APIDs is viewable via status display
- vcProcessor module discards VC63 VCDUs when creating files for playback
- The VCDU Sequence Counter field occupies 32 bits in APID 1000.
- The PDB Red/Yellow Limits file is used to refine initial telemetry values.
- Signed telemetry data values are validated as one’s and two’s complement integers upon user input, as appropriate.
- Displays of telemetry and command container item names may be saved and restored.
- **Accept telemetry and CLCW packets from an external source in IP mode**
- **Update telemetry parameter values to reflect data received from the external source**
- **Update CLCW field values to reflect data received from the external source.**
- **Forward, via IP interface, the telemetry and CLCW packets received from the external source.**
- **Modify telemetry parameter values and CLCW field values in externally received packets prior to re-transmission, in response to operator directive.**

- **Test Hexadecimal numbers entered by the operator or via scenario script to see if they fit the parameter space as negative numbers, if the telemetry parameter is signed.**

Command:

- Ingest command-related PDB files
- Identify commands using information from the PDB
- Display event messages with command mnemonics and submnemonics
- Set telemetry points in response to commands received (end-item verification) using information from the PDB
- Recognize spacecraft Command Loads
- Display Command Load data
- Copy Command Load data to a Memory Dump buffer
- Inhibit the Command Load data copy facility via operator directive
- Validate checksums of received Command Loads
- Ingest type AD, BC, and BD commands
- Display Total CLTUs count
- Reset Total CLTUs count
- Display Rejected CLTUs count
- Reset Rejected CLTUs count
- Display Instrument commands count
- Reset Instrument commands count
- Display Spacecraft commands count
- Reset Spacecraft commands count
- Display BC commands count
- Reset BC commands count
- Display BD commands count
- Display current Spacecraft CLCW
- Update Spacecraft and instrument CLCW
- Display current Instrument CLCW
- Validate commands based on individual, all, or none of the following validation criteria: CLTU Start and Tail Sequences, BCH Error Code, Transfer Frame Header Fields, FARM (Valid Frame Sequence), User Command Packet Header
- Generate event messages based on ingest
- Log raw commands (viewable by offline utility)
- Display raw command in hexadecimal or octal format addressed in either hexadecimal or decimal fashion
- Display command packet headers for instrument commands
- Display command packet headers for spacecraft commands
- Update command accepted and rejected counters in telemetry
- Command sub-mnemonics are saved in container items and may be viewed after command receipt

- **Enable and disable automatic setting of end-item verifier telemetry points for commands received, in response to operator directive.**

Time:

- Maintain and update SC time (GIRD)
- Maintain and update GMT time
- Synchronize SC and GMT times

General:

- Control all simulator module functions via scenario scripts
- Selection of scenario scripts may be via operator type-in or via a file selection browse window
- Start scenario scripts in response to commands received
- Start a scenario script from a scenario script
- Execute multiple scenario scripts simultaneously
- Provide operator control of multiple scenario scripts started by the operator
- Save the last 10 operator directives
- Allow editing of saved operator directives before re-execution
- EDOS Service Header (ESH) fields may be viewed
- ESH field contents may be modified by the operator
- Validation of Command Data Block (CDB) header fields of commands received
- Modification of expected values of CDB header fields
- All viewable buffers may be displayed
- Addition, deletion, and modification of command end-item verifiers via SQL scripts
- Logs of commands received or telemetry transmitted may be retransmitted via IP output or Serial output
- Expected Spacecraft ID may be modified in EOSGS module
- CLCW ESH field contents may be modified by the operator
- Event messages to the screen may be inhibited or enabled by severity (color)
- Scenario scripts may contain IF-then-ELSE-ENDIF and WHILE-ENDWHILE conditional execution directives
- The Scenario module may interface with multiple modules
- Intermediate variables A – Z permit saving values as real numbers
- Intermediate variables Aq – Zq permit saving values as long integers
- The Aura PDB DFCD schema has been adopted
- The Load Database window can accept a 32 character version designator
- The Serial Output module can accept directives from the operator or via a scenario script.
- The Event Message window has been separated from the project window and has been made resizable.

Attachment B – Installation Instructions for MPS/Aqua Release 6.6

This attachment contains the instructions for installing the PDB files and the MPS/Aqua Release 6.6 Server and Client. The information presented in this attachment is divided into three major sections. The first section contains abbreviated installation instructions, the second contains a summary of the installation changes, and the third section contains detailed instructions for performing initial and subsequent installations.

IMPORTANT

Once the Oracle database has been set to the Aura schema definition it is not possible to run Release 6.4 of the MPS/Aqua simulator using that database.

B-1: Abbreviated Installation Instructions

These instructions are intended for the experienced user performing an installation on a PC where Oracle has already been installed **AND the CreateMPSPDB.bat batch file has been executed (see Paragraph B-3.6, step 1 below.)**

1. Install the MPS/Aqua Release 6.6 Client software by executing the **Setup.exe** program in the Client folder of the CD.
2. Install the MPS/Aqua Release 6.6 Server software by executing the **Setup.exe** program in the Server folder of the CD.
3. If the Aura-format database scripts were not previously installed, install them by executing the **Database.bat** program in the Database folder of the CD.

   Note that the **Database.bat** program will overwrite all contents of the folder **D:\mps_pdb** and its sub-folders, if they exist.

4. If Step 3 has been performed, then create a folder under **D:\mps_pdb\PM1PDBs** to hold the Aqua PDB source files. Copy the Aqua PDB source files into this new folder. Twelve files are needed. See the list in Paragraph B-3.5 for the files to be copied.

5. If this is an initial installation and the database has not been created, navigate to the **D:\mps_pdb\GenericScripts** folder and execute the **CreateMPSPDB.bat** batch program. **ONLY PERFORM THIS STEP ONCE.**

6. If the database has been created but the new Aura-compatible tables were not previously created, as during installation of MPS/Aura Release 3.0 or MPS/Aqua Release 6.5, navigate to the **D:\mps_pdb\GenericScripts** folder and execute the **Build_PDB_Tables.bat** batch program. This creates the Aura-format tables within Oracle. **ONLY PERFORM THIS STEP ONCE!**

7. Navigate to the **D:\mps_pdb\PM1Scripts** folder and execute the **Load_Next_PM1_PDB.bat** batch program. This will ingest the PM-1 PDB into Oracle. There are two important points to follow:

    - When navigating to the folder containing the PDB source files, double-click each folder name except the last. The folder containing the PDB files is selected, not opened.
    - Spaces are not permitted when entering the PDB version designator.

    Steps 4 and 7 may be repeated as many times as necessary to ingest all desired PDB versions.

8. If desktop shortcuts for the ADD_CMD_VERIFIER.bat, MODIFY_CMD_VERIFIER.bat, and DELETE_CMD_VERIFIER.bat programs had been placed on the desktop, delete those shortcuts and, optionally, replace them with shortcuts to the batch files of the same names in **D:\mps_pdb\GenericScripts**.

9. When initializing the MPS/Aqua simulator for the first time, any IP-mode projects needed must be built and saved.

B-2: Summary of changes

Several changes had to be made to accommodate the Aura PDB schema changes while allowing Aura and Aqua PDBs to reside in the same Oracle repository. These changes are:

- The PDB root folder is now **D:\mps_pdb.** Sub-folder details are given in Paragraph B-3.4.
- The Oracle ingest scripts now attach a spacecraft name to every record. The field name is **sc_name**. In addition to the version designator, all SQL queries must now include either "**sc_name = 'AURA'** " or "**sc_name = 'PM1'** ". The single quotes are required syntax. The MPS simulators automatically append the correct spacecraft name when accessing the Oracle database.
- PM1 was selected as a spacecraft name vs. Aqua to minimize the chance of errors.
- The last Aura PDB loaded AND the last PM1 PDB loaded will each be the default for that spacecraft name within Oracle.
- The version designator has been increased to 32 characters. **Spaces are not allowed. All alphabetic characters will be translated to upper case.**

- The batch file to create the Oracle tables has been renamed to **Build_PDB_Tables.bat**
- There is one batch file to ingest all Aura PDBs. It is named **Load_Next_Aura_PDB.bat**
- There is one batch file to ingest all Aqua (PM1) PDBs. It is named **Load_Next_PM1_PDB.bat**

B-3: Detailed Installation Instructions

This is the complete procedure for performing an initial or subsequent installation of the MPS/Aqua simulator Release 6.6, and associated software, data files, and COTS programs on a PC. There are three parts to the installation:

- Oracle Installation
- Simulator Installation
- script installation and PDB ingest

Materials Needed:

- The CD containing the Oracle software
- One or more versions of the Aura Project Data Base (PDB)
- The CD containing the MPS/Aqua Release 6.6 software

B-3.1: Oracle Installation

Installation of the Oracle database product need only be performed if the simulator is being installed on a new PC or one that has had its hard drive replaced. If Oracle is already installed on the PC then skip to Paragraph B-3.2.

Two separate Oracle product groups are required for the MPS simulator – Oracle 8i Enterprise 8.1.5.0.0 and Oracle 8i Programmer 8.1.5.0.0. Both product groups are contained on a single CD. There are a few points to keep in mind:

- The installing account must have administrator privileges.
- The machine selected as the Oracle server must have a D: drive.
- The server must be re-booted after installing both product groups.

Installation Instructions for Oracle8i Enterprise 8.1.5.0.0

Log in using the Administrator account. The entire installation should take no more than 10 minutes.

Panel	Panel Title	User Action
1.	Oracle8i Enterprise Edition for Windows NT	1. Select **Install/Deinstall Products**
2.	Oracle Universal Installer (O. U. I.)	1. Select **Next**
3.	File Locations	1. Source… Accept the default 2. Destination – Name Enter **DEFAULT_HOME** 3. Destination – Path Enter **D:\orant** 4. Select **Next**
4.	Available Products	1. Select **Oracle8i Enterprise Edition 8.1.5.0.0** 2. Select **Next**
5.	Installation Types	1. Select **Typical Configuration** 2. Select **Next**
6.	Location for Oracle Documentation	1. Select **Hard Drive** 2. Select **Next**
7.	Database Identification	1. Global Database Name Enter **oracle.world** 2. Select **Next**
8.	Summary	Select **Install**
8a.	Install	(Wait)
8b.	Configuration Tools	(Wait)
8c.	Oracle Database Configuration Assistant Alert	Click on **OK**.
9.	End of Installation	Select **Next Install**

Installation Instructions for Oracle8i Programmer 8.1.5.0.0

Panels 1 and 2 will only be seen if Oracle Programmer is being installed separately. If this is a continuation of the Oracle installation, control will go immediately to panel 3.

Panel	Panel Title	User Action
1.	Oracle8i Enterprise Edition for Windows NT	1. Select **Install/Deinstall Products**
2.	Oracle Universal Installer (O. U. I.)	1. Select **Next**
3.	File Locations	1. Source... **Accept the default** 2. Destination - Name Enter **DEFAULT_HOME** 3. Destination - Path Enter **D:\orant** 4. Select **Next**
4.	Available Products	1. Select **Oracle Programmer 8.1.5.0.0** 2. Select **Next**
5.	Installation Types	1. Select **Custom Installation** 2. Select **Next**

6.	Available Product Components	1. Select **ProC/C++** which automatically selects other items from the list. 2. Select **Next**
7.	Summary of Products	1. Select **Install**
8.	Install	**Wait** (When installation completes, the next panel pops up automatically.)
9.	End of Installation	1. Select **Exit** and Select "Yes" in the Confirmation pop-up box that appears.
10.		Close the Oracle Installation program by clicking on the X in the upper right corner.

All Oracle software required to run the MPS simulator has been installed. You must now re-boot your workstation and log in as the desired simulator user. The Oracle services will not begin running until you do this.

B-3.2: Java Runtime Engine Installation

Installation of the Java Runtime Engine product need only be performed if the simulator is being installed on a new PC or one that has had its hard drive replaced. If Java is already installed on the PC then skip to Paragraph B-3.3.

1. Insert the CD containing the MPS/Aqua Release 6.6 into the CD drive and navigate to it using either Windows Explorer or My Computer.

2. Double-click on the file named **jdk1_2_2-win.exe.** This will cause the Java Runtime Engine to be installed. Accept all defaults when responding to the installation prompts.

B-3.3: Installation of the Aqua Server and Client software

The steps in this paragraph cause the MPS/Aqua Client and Server software to be installed on the PC.

1. Insert the delivery media into the appropriate drive.

2. To install the Aqua Client:
   a) On the desktop, click on the Start button, and then select Run from the resulting menu.
   b) When the Run window appears select the Browse… button.
   c) From the Browse Window, select the Removable drive that contains the installation CD.
   d) Click on the Client folder.
   e) From within the Client folder, double click on the **Setup.exe** filename.
   f) A window with the title "Run Window" will appear. Click on the Okay button to proceed to the next step.

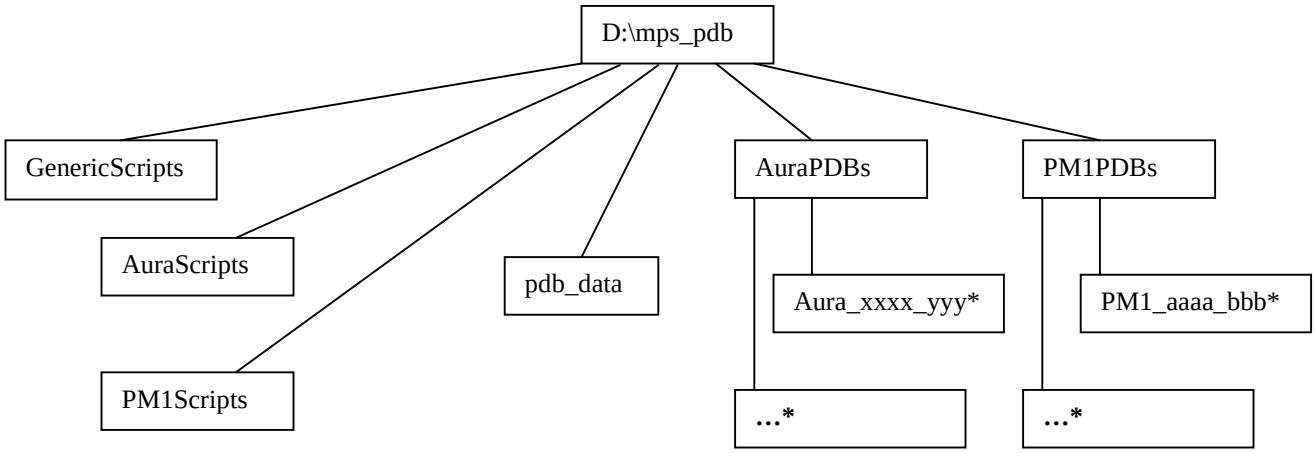
g) The screen will be filled with an Aqua Client background and a smaller window with the title “Welcome to Aqua Client 6.6” will appear. Click on the Next button to proceed to the next step.
h) The next window will contain the licensing agreement. Click on Yes to accept the agreement and proceed.
i) After all of the files are copied, a window with the title “Setup Complete” will appear. Click on the Finish button to end.
j) An Aqua Client icon will now be installed on the desktop.

3. To install the Aqua Server:
   a) On the desktop, click on the Start button, and then select Run from the resulting menu.
   b) When the Run window appears select the Browse… button.
   c) From the Browse Window, select the Removable drive that contains the installation CD.
   d) Click on the Server folder.
   e) From within the Server folder, double click on the **Setup.exe** filename.
   f) A window with the title “Run Window” will appear. Click on the Okay button to proceed to the next step.
   g) The screen will then be filled with an Aqua Server background and a window with the title of “Welcome to Aqua Server 6.6” will appear. Click the Next button to proceed.
   h) The next window will contain the licensing agreement. Click on Yes to accept the agreement and proceed.
   i) Next a window will show the completion status as the files are copied. When the copying is complete click on the Finish button to finish the installation.
   j) An Aqua Server icon will be installed on the desktop.

B-3.4: Installation of the Oracle database ingest scripts

Installation of the Oracle database ingest scripts need only be performed if the simulator is being installed on a new PC or one that has had its hard drive replaced, or the scripts were not installed as part of either the MPS/Aura Release 3.0 installation or the MPS/Aqua Release 6.5 installation. If the Oracle scripts were already installed as part of an earlier installation, then skip to Paragraph B-3.5.

A batch file is being provided which will create the directory structure. When executed, it will create the following directory structure with needed batch files, SQL scripts, and Java programs, minus the PDB-specific folders, on the D drive of the hard disk.



* Folders containing Aqua or Aura PDB source files.

To install the database scripts:

a) Insert the delivery media into the appropriate drive.
b) On the desktop, click on the Start button, and then select Run from the resulting menu.
c) When the Run window appears select the Browse… button.
d) From the Browse Window, select the Removable drive that contains the installation CD.
e) Click on the Database folder.
f) From within the Database folder, double click on the **Database.bat** filename.

B-3.5: PDB Download

The next step is to copy the PDB onto the hard drive. You will need at least one version of the Aqua PDB. The following PDB flat files are needed, where *xxxxxx* corresponds to the version portion of the filename:

cmd_desc_*xxxxxx*.pdb
cmd_fixdata_*xxxxxx*.pdb
cmd_parm_*xxxxxx*.pdb
cmd_vardata_*xxxxxx*.pdb
cmd_verify_*xxxxxx*.pdb
tlm_calcurve_*xxxxxx*.pdb
tlm_desc_*xxxxxx*.pdb
tlm_dstate_*xxxxxx*.pdb
tlm_packet_*xxxxxx*.pdb

tlm_parm_*xxxxxx*.pdb
tlm_polyconv_*xxxxxx*.pdb
tlm_rylim_*xxxxxx*.pdb

Add a folder to the directory structure shown above, under the **PM1PDBs** folder, to hold the source files of the Aqua PDB.

Copy the desired version of the PDB into the folder just created. If desired, more than one version of the PDB may be copied. Be sure to copy each version into its own folder.

B-3.6: Database setup and PDB Ingest

The next steps are concerned with creation of the Oracle database and ingest of the PDB. If the action described has already been performed you may skip to the following step.

1. Create the simulator user account with userid **stest**, password **etsmps1:**

   Using either Windows Explorer or My Computer, navigate to the **D:\mps_pdb\GenericScripts** folder and double-click on the **CreateMPSPDB.bat** batch program. **ONLY PERFORM THIS STEP ONCE.**

2. Create the PDB tables within the Oracle database:

   Locate and double-click on the **Build_PDB_Tables.bat** batch file within the **D:\mps_pdb\GenericScripts** folder. **ONLY PERFORM THIS STEP ONCE.**

3. Load the Aqua PDB into Oracle:

   Repeat this step as many times as necessary to ingest all versions of the Aqua PDB that you have placed on the hard drive.

   Note that the last PDB version ingested into Oracle will become the default for Aqua.

   Using Windows Explorer (or My Computer), navigate to the **D:\mps_pdb\PM1Scripts** folder, locate the **Load_Next_PM1_PDB.bat** batch file, and execute it by double-clicking on the filename. This batch file will ingest Aqua PDBs into Oracle. It does not matter whether this is the first or any subsequent version of the PDB

As the batch file executes it will call various batch programs, executable programs, Java programs, and SQL scripts in the **GenericScripts** and **AuraScripts** folders.

1. During the batch file execution you will be prompted to specify the path to the PDB source files. Follow these steps to do so:

- In the pop-up window titled **Please select a directory** click on the Browse button. That is the button with three dots on the right of the window.
- In the resulting **File Open** window navigate through the directory structure by double-clicking on folder names until the desired folder appears. Do not open that folder. Select it by single-clicking on its name.
- Next, single-click on the Open button. The **File Open** window will disappear.
- It may take a minute for the directory path to appear in the filename box of the **Please select a directory** window. When it does, click the **Close** button. All PDB files have now been copied to the **pdb_data** folder.

2. Also during the batch file execution you will be required to type in a version designator. You may enter 1 – 32 characters to uniquely identify this version of the PDB. All alphabetic characters will be translated to capital letters.

4. Ingest Verification

You may verify the correctness of the PDB ingest by checking the *.log files in the **D:\mps_pdb\PM1Scripts** folder. Look for the line "*n Rows successfully loaded.*" The number on that line should equal the number on the line *"Total logical records read:"* a little further down. Also the *"Rows not loaded…"* lines and the *"Total logical records skipped"*, *"… rejected"*, and *"…discarded"* lines should all be zero.

If there are any files with the suffix **BAD** in the **D:\mps_pdb\PM1Scripts** folder, examine their contents. They will contain the text of any records skipped due to format errors.

You may also check the ingest by using SQL*Plus to check the integrity of the PDB within Oracle. While there are many checks that may be run, the following two SQL queries should suffice.

Invoke SQL*Plus and enter the query:

select * from versions;

The version designator you entered should appear in the resulting list. Any alphabetic characters will have been translated to capital letters.

Enter the query:

select count(*) from cmd_full_fixed where version='<your version designator>**' and sc_name='PM1';**

The result should be a non-zero record count equal to the *"Total logical records read"* count in the cmdparm.log file.

5. Replacement of Command Verifier Modification files

If desktop shortcuts for the ADD_CMD_VERIFIER.bat, MODIFY_CMD_VERIFIER.bat, and DELETE_CMD_VERIFIER.bat programs had been placed on the desktop, delete those shortcuts and, optionally, replace them with shortcuts to the batch files of the same names in **D:\mps_pdb\GenericScripts**.

Attachment C - Special Operating Instructions

This attachment contains special operating instructions for MPS/Aqua Release 6.6. Some of the instructions given below have been repeated from the MPS/Aqua Release 6.5 delivery package.

A User's Guide is being updated to include the information presented in this section. The User's Guide will be available from the ETS home page at http://esdis-it.gsfc.nasa.gov/ ETS/ets.html.

Processing of externally received telemetry

With Release 6.6 the capability has been added to accept, modify, and retransmit telemetry and CLCW packets from an external source, such as the EOC Training Simulator Facility (ETSF). In this release this capability only works in IP mode. As each packet is received the MPS will apply any changes directed by the operator and immediately forward the packet via IP Multicast. The following paragraphs describe the processing in detail.

External Packet Input Processing:

1. External data must be connected to input channel 3 of the SCPM1 module. Packets may be received from one or more external sources via Input IP modules, from one or more disk files via the TxFile module, or a combination of these methods. A sample Project is shown later in this section.

2. The external data packet may be an EOS Enhanced CLCW packet or an EOS Telemetry packet. The Aqua PDB is used to identify all received telemetry packets. CLCW packets are recognized by the three fill bytes at the front of the data area.

3. The external packet may optionally have an EDOS Service Header preceding the data. **If a header is present, all packets must have the same header.** There is a single container item that defines the size of this header in bytes. (All new container items are listed in tables later in this document.)

4. If the received packet cannot be identified, a warning event message is produced and the input is counted as an error. For APID packets, this means that all packets expected from the external source must be properly defined in the database. The event message also provides the current length in bytes of the optional service header in case this value needs adjustment.

CLCW Processing:

1. Since the CLCW buffers are provided to telemetry threads and may now be overwritten with external data, critical section processing was added so that a consistent buffer is available for transmission.

2. Filtering of CLCWs: There is a flag, per CLCW buffer, to enable/disable external input. See the container item list below for the names of these flags. It is possible to have the external source provide the spacecraft CLCW but not the instrument CLCW, and vise versa.

3. When an external CLCW packet is processed, it is copied to the appropriate CLCW buffer. If the operator has modified any fields of the CLCW within MPS, these modifications will be made to the buffer before it is re-transmitted.

4. Each field of each CLCW has an associated update flag. Whenever the operator modifies a field, this flag will be set. This causes the change to persist in all following CLCW packets. If a temporary change was intended, the operator MUST clear the associated update flag for the specific field immediately after the CLCW is transmitted. Then the value from the next external CLCW will be used for this field.

5. After any modifications have been applied, values from the CLCW buffer are copied into the individual field variables. This keeps the CLCW displays properly updated.

6. Both ignored and processed external CLCW packets are counted.

Telemetry APID Packet Processing:

1. Since the APID packet buffers may now be overwritten with external data, critical section processing was added so that a consistent buffer is available for transmission.

2. Filtering of external APID packets:

    a. If a received packet is transmit “enabled" within MPS, it is assumed to be controlled solely by the SCPM1 module. The external packet input thread will count but otherwise ignore the packet. Thus the generation and transmission of "enabled" packets works in the same way as in previous releases.

    b. If a packet is received which is transmit "disabled" within MPS, its external load enabled flag will be checked. If the external load flag is enabled, the packet will be accepted and retransmitted. It is assumed that the transmission timing for external packets is controlled externally. The

packet is copied into the appropriate packet buffer, formatted, then immediately transmitted. This eliminates the need for packet timing coordination between MPS and the external source. It also solves the problem of receiving dump packets since these packets are in the database and "disabled" by default. If the external load flag is set to disabled, the received external packet is counted but otherwise ignored.

3. When an external packet is accepted for retransmission the following happens:

    a. It is copied into the appropriate telemetry buffer. The EDOS Service Header, if present, is stripped off and discarded. For packets with secondary keys, the logic makes the key value of the received packet buffer the current one, thus ensuring transmission of secondary keys in the same order and with the same timing as the external source.

    b. The packet header is formatted, and any operator directed changes to telemetry values are applied. When the external load flag is enabled, new updates (from operator or scenario files) to this packet's telemetry are saved in an update vector and applied to every packet received.

    c. All telemetry points associated with the APID are set to the values from the formatted buffer. This means that parent and child mnemonics will be in agreement for externally received packets and scenario scripts may access telemetry point values set by the external source or by the MPS operator. The telemetry points may also be monitored using the container item display.

    d. The packet is immediately transmitted. If it is send through the EOSGS module, as is standard when acting as an ETSF Front End, a new EDOS Service Header is applied. While there will be a small delay from processing each packet, the interval between packets will reflect the external timing.

Operations Concepts:

When the MPS/Aqua simulator is being used without externally supplied data, nothing has changed. The simulator will operate exactly as it has in previous releases.

MPS defaults to disable of external input for both CLCW packets and all defined telemetry packets. When the simulator is being used with externally supplied data a scenario script must be run to enable external input of specific APIDs and CLCW packets. The user may run another scenario script to specify timing and transmit "enable" flags for those packets that are to be generated by the SCPM1 module. A boilerplate scenario script to enable external packet receipt is being supplied with the delivery package.

If APID 1000 is enabled for external receipt, the simulator will not apply data to the time fields or set the VCDU count. APID 1000 will be handled in the same way as any other externally received packet. Should any of the telemetry points for APID 1000 be modified by the MPS operator, these changes will be processed and applied to the next and all subsequent packets.

Setting of end-item verifier telemetry points in response to commands received is enabled by default. When packets are being received externally and commands are being received, it may be desirable to disable setting of end-item verifiers. To do so, set the container item, *commandverification*, to zero.

Whenever a user makes a change to a CLCW field, the field is immediately copied into the associated CLCW buffer and the update flag for that field is then set. If the operator modifies a CLCW field when the CLCW is being received externally, these changes will persist. This may not always be desired. For example, the operator may change the externally loaded CLCW to set the lockout flag to true. Because the change is "sticky", the lockout flag will stay true even when new external data packets would reset the field to false. If the operator wants the field to match the external data again, the field's update flag must be cleared. The names of all CLCW flags are given in the container item table below.

The picture on the second following page shows how MPS might be configured for receipt of data from an external source such as the ETSF.

- InputIP #0 is set up to receive command data transmitted by EMOS. It is connected to input channel #2 of the SCPM1 module via the EOSGS module.
- Input IP #2 receives telemetry packets transmitted by the ETSF. It is connected to input channel #3 of the SCPM1 module.
- Input IP#3 receives CLCW packets transmitted by the ETSF. It is also connected to input channel #3 of the SCPM1 module.

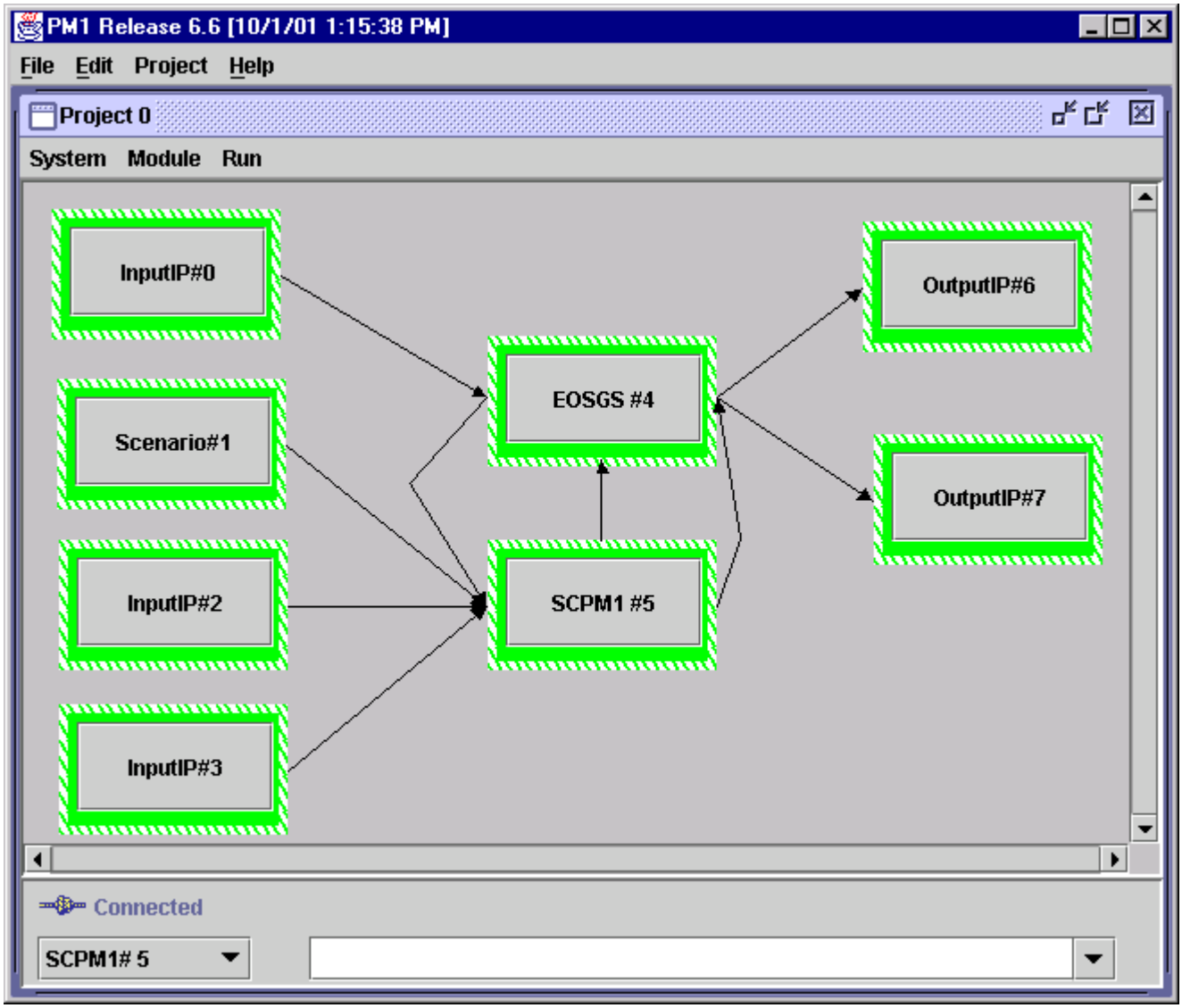
- Output IP #6 and Output IP #7 transmit the telemetry and CLCW packets, respectively.

All of the channel connections are summarized in the following table.

Purpose	Source	Source Channel	Destination	Destination Channel
Command Receipt	Input IP #0	1*	EOSGS	1
Command Receipt	EOSGS	1	SCPM1	2
Scenario Script Execution	Scenario	1	SCPM1	1
Telemetry Receipt	Input IP #2	1*	SCPM1	3
CLCW Receipt	Input IP #3	1*	SCPM1	3
Telemetry Packet Transmit	SCPM1	1	EOSGS	2
CLCW Packet Transmit	SCPM1	2	EOSGS	3
Telemetry EDU Transmit	EOSGS	2	Output IP #6	1*
CLCW EDU Transmit	EOSGS	3	Output IP #7	1*

*The module has only one input or output channel.

Typical MPS Project for Receipt and Retransmission of External Data:



The following container items have been added to support external packet receipt and retransmission. The packet counts may be viewed by invoking the **External Packet Summary** display from the **Telemetry** menu. The **APID Status** display has been augmented with a column showing the external enabled status.

Container Item Name for Global Flags and Counts	**Description**
ExternalPacketHeaderBytes	Size of optional header on all external packets. Defaults to 20 bytes for an EDOS Service Header.
ExternalCLCWCount	Count of all external CLCW packets processed
ExternalAPIDCount	Count of all external APID packets processed
ExternalIgnoredCLCWCount	Count of all CLCW packets ignored because external loading was disabled
ExternalIgnoredAPIDCount	Count of all APID packets ignored because external loading was disabled
ExternalPacketErrorCount	Count of all external packets in error

Container Item Name for APID items	**Description**
TlmPacketxxxxExternalEnabled where xxxx = APID in decimal	External load enable flag for Telemetry packet xxxx (0=disabled, 1=enabled) Default is disabled.

Container Item Name for end-item verifier setting	**Description**
commandverification	Controls setting of end-item verifier telemetry points in response to commands received. (0=disabled, 1=enabled) Default is enabled.

Container Item Name for CLCW items	**Description**
SpaceClcwExternalEnabled	External load enable flag for Spacecraft CLCW buffer (0=disabled, 1=enabled) Default is disabled.
InstrClcwExternalEnabled	External load enable flag for Instrument CLCW buffer (0=disabled, 1=enabled) Default is disabled.
UpdatedSpaceClcwCWT UpdatedInstrClcwCWT	Sticky update flag for spacecraft/instrument CLCW Control Word Type field (0=false, 1=true)
UpdatedSpaceClcwVersion UpdatedInstrClcwVersion	Sticky update flag for spacecraft/instrument CLCW Version field (0=false, 1=true)
UpdatedSpaceClcwStatus UpdatedInstrClcwStatus	Sticky update flag for spacecraft/instrument CLCW Status field (0=false, 1=true)
UpdatedSpaceClcwCOP UpdatedInstrClcwCOP	Sticky update flag for spacecraft/instrument CLCW COP In Effect field (0=false, 1=true)

UpdatedSpaceClcwVCID UpdatedInstrClcwVCID	Sticky update flag for spacecraft/instrument CLCW VCID field (0=false, 1=true)
UpdatedSpaceClcwSpare1 UpdatedInstrClcwSpare1	Sticky update flag for spacecraft/instrument CLCW spare 1 field (0=false, 1=true)
UpdatedSpaceClcwNoRfAvail UpdatedInstrClcwNoRfAvail	Sticky update flag for spacecraft/instrument CLCW No RF Avail field (0=false, 1=true)
UpdatedSpaceClcwNoBitLock UpdatedInstrClcwNoBitLock	Sticky update flag for spacecraft/instrument CLCW No Bit Lock field (0=false, 1=true)
UpdatedSpaceClcwLockout UpdatedInstrClcwLockout	Sticky update flag for spacecraft/instrument CLCW Lockout field (0=false, 1=true)
UpdatedSpaceClcwWait UpdatedInstrClcwWait	Sticky update flag for spacecraft/instrument CLCW Wait field (0=false, 1=true)
UpdatedSpaceClcwRetransmit UpdatedInstrClcwRetransmit	Sticky update flag for spacecraft/instrument CLCW Retransmit field (0=false, 1=true)
UpdatedSpaceClcwFarmCount UpdatedSpaceClcwFarmCount	Sticky update flag for spacecraft/instrument CLCW FARM-B Count field (0=false, 1=true)
UpdatedSpaceClcwSpare2 UpdatedInstrClcwSpare2	Sticky update flag for spacecraft/instrument CLCW spare 2 field (0=false, 1=true)
UpdatedSpaceClcwReport UpdatedInstrClcwReport	Sticky update flag for spacecraft/instrument CLCW Report field (0=false, 1=true)

Telemetry Data Value Validation

With Release 6.5 the values of 1's and 2's complement signed integers, when entered by the operator, are now checked to ensure that the signed value will fit into the packet space. For example, given that a telemetry parameter is an 8-bit 2's complement signed integer, any entry that is more negative than –128 or more positive than 127 will be rejected by the simulator with an error message. The parameter will be set to zero.

This capability has been enhanced in Release 6.6 to test Hexadecimal numbers for fit as a negative number, if the telemetry parameter is signed and the hex number appears to be too large when taken to be positive.

The following paragraphs are copied from the MPS/Aqua Release 6.5 delivery package, for the convenience of the user.

PDB Ingest Enhancements

The PDB schema described in the Aura PDB Data Format Control Document (DFCD) has been adopted for storing the database flat files into Oracle. This allows storing of Aqua and Aura PDBs in the same repository.

> MPS/Aqua Release 6.4 or earlier and MPS/Aura Release 2.0 will not be able to interface with Oracle once the new schema has been applied.

The directions for creating the new PDB tables within Oracle are given in Attachment B, Paragraph B-3.6, steps 1 and 2.

The following steps are to be followed to ingest each new PDB into Oracle once the tables have been defined.

Note that the last PDB version ingested into Oracle will become the default for Aqua.

1. Create a folder under **D:\mps_pdb\PM1PDBs** and load the new source PDB files into it. Make no changes to the file names. The Java program that copies the files to the **pdb_data** folder expects the filenames to be in the format described in Paragraph 4.2.2.6 of the Aqua DFCD. (Example: tlm_packet_xxxxxx.pdb, where xxxxxx is the version designator.)

2. Using Windows Explorer (or My Computer), navigate to the **D:\mps_pdb\PM1Scripts** folder, locate the **Load_Next_PM1_PDB.bat** batch file, and execute it by double-clicking on the filename. This batch file will ingest Aqua PDBs into Oracle. It does not matter whether this is the first or any subsequent version of the PDB

   As the batch file executes it will call various batch programs, executable programs, Java programs, and SQL scripts in the **GenericScripts** and **PM1Scripts** folders.

3. During the batch file execution you will be prompted to specify the path to the PDB source files.
   - In the pop-up window titled **Please select a directory,** click on the Browse button. That is the button with three dots on the right of the window.
   - In the resulting **File Open** window navigate through the directory structure by double-clicking on folder names until the desired folder appears. Do not open that folder. Select it by single-clicking on its name.
   - Next, single-click on the Open button. The **File Open** window will disappear.
   - After the directory path appears in the filename box of the **Please select a directory** window, click the **Close** button.
   - At this point the PDB files will be copied to the **pdb_data** folder, renamed, and modified to be ingested into Oracle.

4. Also during the batch file execution you will be required to type in a version designator. You may enter 1 – 32 characters to uniquely identify this version of the PDB. All alphabetic characters you enter in the version designator will be translated to capital letters.

Operation of earlier versions of the MPS/Aqua Simulator

MPS/Aqua Release 6.4 and earlier will not be able to interface with Oracle once the table schema is updated to the Aura format. If another PC with Oracle installed is connected to the same subnet, and has the Aqua version of the PDB schema installed, it is possible to run an older version of the Aqua simulator by connecting and loading the Aqua PDB across the network.

It is also possible to run the MPS/Aqua Release 6.6 simulator on a PC that does not have the new Oracle table schema installed if it can be connected to Oracle across a network.

Follow these steps to set up the proper Oracle services.

To use this capability, Oracle must be installed on both computers and an alias for the remote server must be created on the PC where the simulator will run. This alias is called a Service Name. To create a Service Name, do the following:

1. Bring up **SQL*Plus** on the PC containing the Oracle database you wish to use and type "SELECT NAME FROM V$DATABASE;". The last line of the resulting output will be the database name. You will need this name when performing step 7 below.

   All remaining steps are performed on the PC where the simulator will run.

2. Start the Net8 Assistant by selecting **Start** -> **Programs** -> **Oracle** -> **Network Admin** -> **Net8 Assistant**. (The exact path may be different.)

3. Click the **Net Service Names** folder then select the *green* "+" in the upper left-hand corner to add a service.

4. The first panel prompts for a **Service Name**. It is just an alias so enter something short and meaningful then select Next.

5. Make sure **TCP/IP** (Internet Protocol) is highlighted and then select Next.

6. Enter the IP address of the remote database server in **Host Name** field, accept the default Port Number (1521), then select Next.

7. Select the *Oracle 8I release 8.0 or previous* radio button. Enter the name of the default database on the remote server in the **Oracle SID** field, then select Next.

8. Do **NOT** select **Test**. Click on **Finish**. You should see your new **Service Name** (with .*world* appended to it) under the **Net Service Names** folder.

9. Select **File** -> **Save Network Configuration**.

10. Select **File -> Exit.**

11. To test the connection, bring up **SQL*Plus** and attempt to connect to the remote server by entering your new **Service Name** in the **Host String** field (don't enter the .*world*). Enter the usual **User Name** and **Password**.

12. When initializing the simulator, enter the **Service Name** into the **Host** field of the **Load Database** window.

Attachment D – Resolved Discrepancy Reports

The following Discrepancy Reports (DRs) and Change Requests (CRs) have been closed by and are being delivered with MPS/Aqua Release 6.6. The DRs/CRs are listed in the table below, which provides the DR/CR Number, Status, Severity, and a short description. A full description of each DR/CR follows the summary table. Complete information on all DRs/CRs may be accessed via the Internet at address http://iree.gsfc.nasa.gov/ddts/.

Summary of Closed Discrepancy Reports

Critical (Severity 1)	Urgent (Severity 2)	Routine (Severity 3)	Change Requests	Total
0	0	1	1	2

Status Definitions

N – New
A – Assigned Analysis
R – Analysis Entered
V – Assigned Verification
T – Tested
C – Closed
W – Withdrawn
P – Postponed
X – Duplicate

ETS No.	SMO No.	Type	Severity	Description
ETS0449	SMOdr14489	CR	2	Enhance MPS so it can act as an ETSF Front End
ETS0450	SMOdr14675	DR	3	MPS reports Out of Range condition for Hex numbers

DR: SMOdr014489 (ETS0449) Related NCR: Submitted: 020109
Status: ASSIGNED-ANALYSIS Class: ETS Asgnd-Analysis: 020117

Title: Enhance MPS so it can act as an ETSF Front End

SUBMITTAL INFORMATION		ANALYSIS INFORMATION
Project:	ETS	Assignee1/Org: Ernest Quintin
DR Type:	Change Request	Phone: 301-805-3649
Rel/Ver:	6.6	Email: equintin@csc.com
Subsystem:	MPS-PM/Aqua	Assignee2/Org:
Module:	Simulator	Phone:
Affected-Requirement:		Email:
Test Phase:	in-field use	Date due (Sev=1,2):
Severity:	2	
Date found:	011214	
Location:	GSFC	
Submitter:	Ernest Quintin	
Organization:	ETS Dev Group	
Phone number:	301-805-3649	
Email:	equintin@csc.com	

********** Problem (Added 020109 by equintin) **********
Add logic to the MPS for Aqua so it can accept telemetry packets
from the ETSF, display telemetry parameters from those packets
at operator request, change telemetry parameters at operator
request, and forward the telemetry packets to EMOS.

DR: SMOdr14675 (ETS0450) Related NCR: Submitted: 020125
Status: ASSIGNED-ANALYSIS Class: ETS Asgnd-Analysis: 020208

Title: MPS reports Out of Range condition for Hex numbers

SUBMITTAL INFORMATION		ANALYSIS INFORMATION	
Project:	ETS	Assignee1/Org:	Ernest Quintin
DR Type:	Problem	Phone:	301 805-3649
Rel/Ver:	6.5	Email:	equintin@csc.com
Subsystem:	MPS-PM/Aqua	Assignee2/Org:	
Module:	Simulator	Phone:	
Affected-Requirement:		Email:	
Test Phase:	in-field use	Date due (Sev=1,2):	
Severity:	3		
Date found:	011214		
Location:	Denver		
Submitter:	Ernest Quintin		
Organization:	ETS Dev Group		
Phone number:	301-805-3649		
Email:	equintin@csc.com		

********** Problem (Added 020125 by equintin) **********

This problem was reported by Raytheon personnel at Denver and verified by CSC developers.

Entries in scenario scripts result in warning messages from MPS and the telemetry parameter is set to zero rather than the negative number desired. Raytheon personnel calculated the Hex equivalent of certain negative numbers for signed parameters in a number of scenario scripts. These scripts worked as expected in Release 6.4 and earlier. However, code changes added to Release 6.5 to bounds check negative integers resulted in Hex numbers being assumed to be positive. Entries which intentionally set the sign bit are incorrectly being flagged as too large for the telemetry parameter.

Attachment E – System Limitations

E.1 MPS/Aqua Release 6.6 Limitations

The following limitations apply to MPS/Aqua Release 6.6. Some of these are Discrepancy Reports (DRs) against SIMSS baseline products and have been recorded in their DR repository.

Problem Description	**Workaround**
The event message window can accept no more than 50 messages per second. The Scenario module can easily overrun this limit and flood the GUI with messages.	Use Sleep directives to slow scenario files to 50 directives per second or less.
If a container item name such as a telemetry mnemonic is entered into multiple displays of the *Display/Set Container Items…* window and updated in a higher numbered display, the update will not be reflected in lower numbered display(s).	Do not duplicate container item names.
When using SQL*Plus to select entries from the Oracle calcurve table via the conversion type field, *conv_type*, it is necessary to put a space after the type entry. e.g. "U_5D ", not "U_5D".	Given at left.
The negate operator does not always work correctly in scenario scripts. e.g. if !(A==0) if true, then !(!(a==0)) should be false. *This is SIMSS defect #325.*	Avoid use of double negation.

Attachment F - Release History Summary Matrix

Attached is the release history summary matrix, which reflects the MPS/Aqua Release 6.6 delivery. Modules inherited from the SIMSS baseline have the SIMSS Release Number, while the MPS/Aqua modules EOSGS and SCPM1 have the current MPS/Aqua Release Number.

Release History Summary Matrix

System: **MPS/Aqua**

Release Number		1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.1	6.0 Beta	6.0 Beta Update 1
Delivery Date		7/30/99	9/2/99	9/24/99	10/25/99	11/18/99	12/17/99	1/21/00	3/17/00	5/12/00	6/22/00	7/28/00	9/14/00
Configuration Item	CI No.												
Core (Client)	1.1	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0
Core (Server)	1.2	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0
SC-PM1 (Client)	1.3	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.0	6.0	6.0
SC-PM1 (Server)	1.4	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.1	6.0	6.0
GS (Client)	1.5	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.0	6.0	6.0
GS (Server)	1.6	1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.0	6.0	6.0
IP Input (Client)	1.7	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0
IP Input (Server)	1.8	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0
IP Output (Client)	1.9	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0
IP Output (Server)	2.0	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0
DQM (Client)[1]	2.1												
DQM (Server)[1]	2.2												
Logging (Client)	2.3	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0

[1] To be delivered in a future release

Release Number		1.0	1.1	2.0	2.1	2.2	3.0	3.1	4.0	5.0	5.1	6.0 Beta	6.0 Beta Update 1
Delivery Date		7/30/99	9/2/99	9/24/99	10/25/99	11/18/99	12/17/99	1/21/00	3/17/00	5/12/00	6/22/00	7/28/00	9/14/00
Configuration Item	CI No.												
Logging (Server)	2.4	1.0	1.0	2.0	2.0	2.0	3.0	1.0	1.0	1.1	1.1	2.0	2.0
Scenario (Client)[2]	2.5								1.0	1.1	1.1	2.0	2.0
Scenario (Server)[2]	2.6								1.0	1.1	1.1	2.0	2.0
Serial Input (Client)[2]	2.7								1.0	1.1	1.1	2.0	2.0
Serial Input (Server)[2]	2.8								1.0	1.1	1.1	2.0	2.0
Serial Output (Client)[2]	2.9								1.0	1.1	1.1	2.0	2.0
Serial Output (Server)[2]	3.0								1.0	1.1	1.1	2.0	2.0
TxFile (Client)[3]	3.1												
TxFile (Server)[3]	3.2												

[2] New in Release 4.0
[3] New in Release 6.0

Release History Summary Matrix, Continued

System: **MPS/Aqua**

Release Number		6.0	6.1	6.2	6.3	6.4	6.5	6.6					
Delivery Date		9/28/00	11/17/00	2/9/01	06/15/01	07/03/01	10/26/01	2/22/02					
Configuration Item	CI No.												
Core (Client)	1.1	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
Core (Server)	1.2	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
SC-PM1 (Client)	1.3	6.0	6.0	6.2	6.3	6.4	6.5	6.6					
SC-PM1 (Server)	1.4	6.0	6.0	6.2	6.3	6.4	6.5	6.6					
GS (Client)[7]	1.5	6.0	6.0	6.0	2.0	2.0	3.0	3.0					
GS (Server)[7]	1.6	6.0	6.0	6.0	2.0	2.0	3.0	3.0					
IP Input (Client)	1.7	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
IP Input (Server)	1.8	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
IP Output (Client)	1.9	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
IP Output (Server)	2.0	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
DQM (Client)[4]	2.1												
DQM (Server)[4]	2.2												
Logging (Client)	2.3	2.0	2.0	4.0	4.1	4.1	5.0	6.0					

[4] To be delivered in a future release
[7] In Release 6.3 the Aura/EOSGS module replaced the Aqua/GSPM1 module

Release Number		6.0	6.1	6.2	6.3	6.4	6.5	6.6					
Delivery Date		9/28/00	11/17/00	2/9/01	06/15/01	07/03/01	10/26/01	2/22/02					
Configuration Item	CI No.												
Logging (Server)	2.4	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
Scenario (Client)[5]	2.5	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
Scenario (Server)[5]	2.6	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
Serial Input (Client)[5]	2.7	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
Serial Input (Server)[5]	2.8	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
Serial Output (Client)[5]	2.9	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
Serial Output (Server)[5]	3.0	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
TxFile (Client)[6]	3.1	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
TxFile (Server)[6]	3.2	2.0	2.0	4.0	4.1	4.1	5.0	6.0					
vcProcessor (Client)[8]	3.3				4.1	4.1	5.0	6.0					
vcProcessor (Server) [8]	3.4				4.1	4.1	5.0	6.0					

[5] New in Release 4.0
[6] New in Release 6.0
[8] New in Release 6.3

Attachment G — Mission Systems Configuration Management Form

This attachment contains the completed Mission Systems Configuration Management (MSCM) form for the delivery of MPS/Aqua Release 6.6.

Mission Systems Configuration Management Form

1. ORIGINATOR	2. ORGANIZATION	3. PHONE	4. E-MAIL ADDRESS
Estelle Noone	CSC	301-805-3653	enoone@csc.com

5. ELEMENT	6. INSTALLATION PRIORITY	7. TRACKING NUMBER (Assigned by CM Office)
ETS (MPS/PM1)	Routine	

8. SOURCE CHANGE REQUEST(S):

ETS delivery of MPS for EOS PM-1 (MPS/PM1)

9. APPROVALS

Element Manager _____ / /

Flight Ops Director _____ / /

Operations Manager _____ / /

10. DELIVERED SYSTEM (Check all that apply)

	Name	Version	Media Identification	Identification Date
☐ Hardware				
☒ Software	MPS/PM1	R6.6	CD-ROM	2/22/02
☐ Database				
☒ Documentation:				
MPS/PM1 delivery package		N/A	via email	2/22/02
☐ Other				

11. CHANGE DESCRIPTION

Release 6.6 of MPS/PM-1 (MPS/PM-1)

12. ATTACHMENT(S): Check if YES ☒

Description: MPS/PM1 Release 6.6 delivery package (cover letter with attachments) dated 2/22/02

13. CM OFFICE USE

	Location (Bldg/Room)	Slot location(s)
Hardware	/	
Media	/	
Documentation	/	

Installation date / /

CM Office Signature _____

Form MSCM (970327)